Market-Based Mechanisms for Efficient Allocation of NAS Resources, Phase I

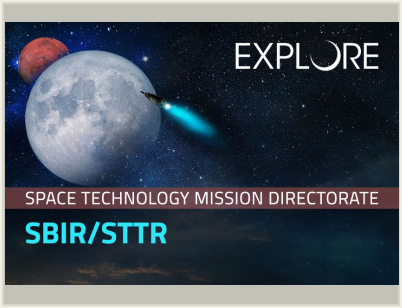
Completed Technology Project (2007 - 2007)

Project Introduction

Both FAA and NASA research has highlighted the need for efficient and equitable allocation of NAS resources and increased operational flexibility. In particular, market-based mechanisms are needed for transferring system-imposed delay from more critical to less critical flights. In this SBIR, we will develop a National Airspace Resource Exchange System (NRES) that will provide the FAA and the aviation community with a means for trading scarce resources and priorities for ATM services. Today's airspace system has rudimentary market mechanisms in place. However, these are valid only for highly specialized circumstances: airport arrival slot trading in ground delay programs applied by FAA traffic managers. We propose to develop an infrastructure necessary to support secondary markets for the full spectrum of NAS resources and services.

Anticipated Benefits

The NAS Resource Exchange System (NRES) has application in commercial air traffic management (ATM) within the United States and abroad. In the United States ATM market, the FAA will require the tools and procedures output by Phases II and III of this SBIR to act as a central processor and tracker of ATM-induced delays. At the same time, US air carriers will require tools with which to monitor and manipulate their delay management accounts. Estimates of ATM costs due to delays range from hundreds of millions of dollars to billions of dollars per year. The opportunity to save even a fraction of these costs creates a significant amount of motivation for airline participation in a delay management system. It is reasonable to assume that the number of carriers willing to participate in this system will be comparable to the number of carriers now signed up as active members of the collaborative decision making (CDM) program, which is 27. Air-traffic delays in foreign countries are generally not as pronounced as in the U.S., but this has been achieved by sacrificing flexibility in the system a major limitation on the ability to handle growth in demand for air transportation. For this reason, foreign ATM systems represent another market for the delay management system.



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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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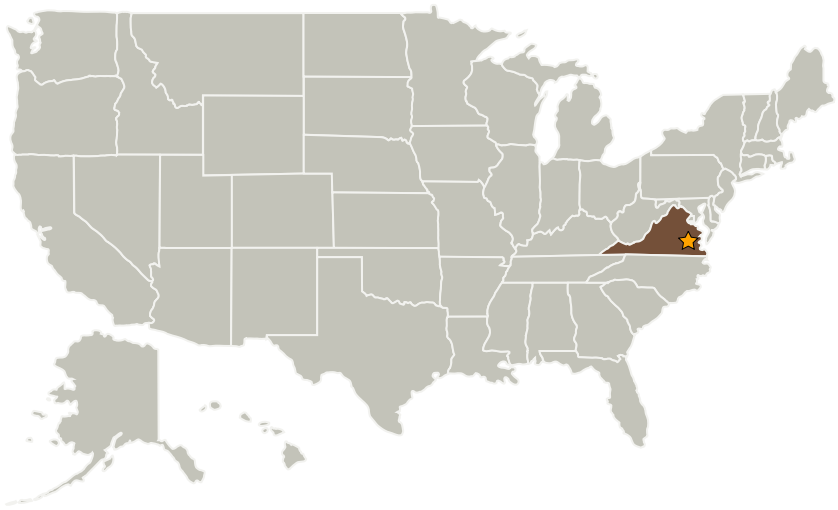
Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Metron Aviation, Inc.	Supporting Organization	Industry	Dulles, Virginia

Primary U.S. Work Locations
Virginia

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Project Manager:
Jeffrey K Viken

Principal Investigator:
Robert Hoffman

Technology Areas

Primary:

- TX16 Air Traffic Management and Range Tracking Systems
  - TX16.3 Traffic Management Concepts